RECEIVED

OCT 3 1 2002

TECH CENTER 1600/2900

1600

RAW SEQUENCE LISTING
PATENT APPLICATION: **US/09/484,331**

DATE: 10/22/2002
TIME: 13:28:36

Input Set : **A:\2210003L.APP.txt**
Output Set: **N:\CRF4\10222002\I484331.raw**

```
 3 <110> APPLICANT: HARRINGTON, JOHN J.
 4        SHERF, BRUCE
 5        RUNDLETT, STEPHEN
 7 <120> TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR NON-TARGETED ACTIVATION OF
 8        ENDOGENOUS GENES
10 <130> FILE REFERENCE: 0221-0003L
12 <140> CURRENT APPLICATION NUMBER: 09/484,331
13 <141> CURRENT FILING DATE: 2000-01-18
15 <150> PRIOR APPLICATION NUMBER: 09/276,820
16 <151> PRIOR FILING DATE: 1999-03-26
18 <150> PRIOR APPLICATION NUMBER: 09/263,814
19 <151> PRIOR FILING DATE: 1999-03-08
21 <150> PRIOR APPLICATION NUMBER: 09/253,022
22 <151> PRIOR FILING DATE: 1999-02-19
24 <150> PRIOR APPLICATION NUMBER: 09/159,643
25 <151> PRIOR FILING DATE: 1998-09-24
27 <150> PRIOR APPLICATION NUMBER: 08/941,223
28 <151> PRIOR FILING DATE: 1997-09-26
30 <160> NUMBER OF SEQ ID NOS: 33
32 <170> SOFTWARE: PatentIn Ver. 2.1
34 <210> SEQ ID NO: 1
35 <211> LENGTH: 39
36 <212> TYPE: DNA
37 <213> ORGANISM: Homo sapiens
39 <400> SEQUENCE: 1
40 tccttcgaag cttgtcatgg ttggttcgct aaactgcat                        39
43 <210> SEQ ID NO: 2
44 <211> LENGTH: 40
45 <212> TYPE: DNA
46 <213> ORGANISM: Homo sapiens
48 <400> SEQUENCE: 2
49 aaacttaaga tcgattaatc attcttctca tatacttcaa                       40
52 <210> SEQ ID NO: 3
53 <211> LENGTH: 28
54 <212> TYPE: DNA
55 <213> ORGANISM: Homo sapiens
57 <400> SEQUENCE: 3
58 atccaccatg gctacaggtg agtactcg                                    28
61 <210> SEQ ID NO: 4
62 <211> LENGTH: 36
63 <212> TYPE: DNA
64 <213> ORGANISM: Homo sapiens
66 <400> SEQUENCE: 4
```

ENTERED

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/484,331

DATE: 10/22/2002
TIME: 13:28:36

Input Set : A:\2210003L.APP.txt
Output Set: N:\CRF4\10222002\I484331.raw

```
67 gatccgagta ctcacctgta gccatggtgg atttaa                          36
70 <210> SEQ ID NO: 5
71 <211> LENGTH: 33
72 <212> TYPE: DNA
73 <213> ORGANISM: Homo sapiens
75 <400> SEQUENCE: 5
76 ggcgagatct agcgctatat gcgttgatgc aat                             33
79 <210> SEQ ID NO: 6
80 <211> LENGTH: 51
81 <212> TYPE: DNA
82 <213> ORGANISM: Homo sapiens
84 <400> SEQUENCE: 6
85 ggccagatct gctaccttaa gagagccgaa acaagcgctc atgagcccga a          51
88 <210> SEQ ID NO: 7
89 <211> LENGTH: 6084
90 <212> TYPE: DNA
91 <213> ORGANISM: Homo sapiens
93 <400> SEQUENCE: 7
94 agatcttcaa tattggccat tagccatatt attcattggt tatatagcat aaatcaatat 60
95 tggctattgg ccattgcata cgttgtatct atatcataat atgtacattt atattggctc 120
96 atgtccaata tgaccgccat gttggcattg attattgact agttattaat agtaatcaat 180
97 tacggggtca ttagttcata gcccatatat ggagttccgc gttacataac ttacggtaaa 240
98 tggcccgcct ggctgaccgc ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt 300
99 tcccatagta acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta 360
100 aactgcccac ttggcagtac atcaagtgta tcatatgcca gtccgccccc ctattgacgt 420
101 caatgacggt aaatggcccg cctggcatta tgcccagtac atgaccttac gggactttcc 480
102 tacttggcag tacatctacg tattagtcat cgctattacc atggtgatgc ggttttggca 540
103 gtacaccaat gggcgtggat agcggtttga ctcacgggga tttccaagtc tccaccccat 600
104 tgacgtcaat gggagtttgt tttggcacca aaatcaacgg gactttccaa aatgtcgtaa 660
105 caactgcgat cgcccgcccc gttgacgcaa atgggcggta ggcgtgtacg gtgggaggtc 720
106 tatataagca gagctcgttt agtgaaccgt cagatcacta gaagctttat tgcggtagtt 780
107 tatcacagtt aaattgctaa cgcagtcagt gcttctgaca caacagtctc gaacttaagc 840
108 tgcagtgact ctcttaatta actccaccag tctcacttca gttccttttg cctccaccag 900
109 tctcacttca gttccttttg catgaagagc tcagaatcaa aagaggaaac caacccctaa 960
110 gatgagcttt ccatgtaaat ttgtagccag cttccttctg attttcaatg tttcttccaa 1020
111 aggtgcagtc tccaaagaga ttacgaatgc cttggaaacc tggggtgcct tgggtcagga 1080
112 catcaacttg gacattccta gttttcaaat gagtgatgat attgacgata taaaatggga 1140
113 aaaaacttca gacaagaaaa agattgcaca attcagaaaa gagaaagaga ctttcaagga 1200
114 aaaagataca tataagctat ttaaaaatgg aactctgaaa attaagcatc tgaagaccga 1260
115 tgatcaggat atctacaagg tatcaatata tgatacaaaa ggaaaaaatg tgttggaaaa 1320
116 aatatttgat ttgaagattc aagagagggt ctcaaaacca aagatctcct ggacttgtat 1380
117 caacacaacc ctgacctgtg aggtaatgaa tggaactgac cccgaattaa acctgtatca 1440
118 agatgggaaa catctaaaac tttctcagag ggtcatcaca cacaagtgga ccaccagcct 1500
119 gagtgcaaaa ttcaagtgca cagcagggaa caaagtcagc aaggaatcca gtgtcgagcc 1560
120 tgtcagctgt ccagagaaag ggatccaggt gagtagggcc cgatccttct agagtcgagc 1620
121 tctcttaagg tagcaaggtt acaagacagg tttaaggaga ccaatagaaa ctgggcttgt 1680
122 cgagacagag aagactcttg cgtttctgat aggcacctat tggtcttacg cggccgcgaa 1740
123 ttccaagctt gagtattcta tcgtgtcacc taaataactt ggcgtaatca tggtcatatc 1800
124 tgtttcctgt gtgaaattgt tatccgctca caattccaca caacatacga gccggaagca 1860
```

```
125 taaagtgtaa agcctggggt gcctaatgag tgagctaact cacattaatt gcgttgcgcg 1920
126 atgcttccat tttgtgaggg ttaatgcttc gagaagacat gataagatac attgatgagt 1980
127 ttggacaaac cacaacaaga atgcagtgaa aaaaatgctt tatttgtgaa atttgtgatg 2040
128 ctattgcttt atttgtaacc attataagct gcaataaaca agttaacaac aacaattgca 2100
129 ttcattttat gtttcaggtt cagggggaga tgtgggaggt tttttaaagc aagtaaaacc 2160
130 tctacaaatg tggtaaaatc cgataaggat cgattccgga gcctgaatgg cgaatggacg 2220
131 cgccctgtag cggcgcatta agcgcggcgg gtgtggtggt tacgcgcacg tgaccgctac 2280
132 acttgccagc gccctagcgc ccgctccttt cgctttcttc ccttcctttc tcgccacgtt 2340
133 cgccggcttt ccccgtcaag ctctaaatcg gggctccct ttagggttcc gatttagtgc 2400
134 tttacggcac ctcgacccca aaaaacttga ttagggtgat ggttcacgta gtgggccatc 2460
135 gccctgatag acggtttttc gccctttgac gttggagtcc acgttcttta atagtggact 2520
136 cttgttccaa actggaacaa cactcaaccc tatctcggtc tattcttttg atttataagg 2580
137 gattttgccg atttcggcct attggttaaa aaatgagctg atttaacaaa aatttaacgc 2640
138 gaattttaac aaaatattaa cgcttacaat ttcgcctgtg taccttctga ggcggaaaga 2700
139 accagctgtg gaatgtgtgt cagttagggt gtggaaagtc cccaggctcc ccagcaggca 2760
140 gaagtatgca aagcatgcat ctcaattagt cagcaaccag gtgtggaaag tccccaggct 2820
141 cccagcagg cagaagtatg caaagcatgc atctcaatta gtcagcaacc atagtcccgc 2880
142 ccctaactcc gcccatcccg ccctaactc cgcccagttc cgcccattct ccgccccatg 2940
143 gctgactaat tttttttatt tatgcagagg ccgaggccgc ctcggcctct gagctattcc 3000
144 agaagtagtg aggaggcttt tttggaggcc taggcttttg caaaaagctt gattcttctg 3060
145 acacaacagt ctcgaactta aggctagagc caccatgatt gaacaagatg gattgcacgc 3120
146 aggttctccg gccgcttggg tggagaggct attcggctat gactgggcac aacagacaat 3180
147 cggctgctct gatgccgccg tgttccggct gtcagcgcag gggcgcccgg ttcttttgt 3240
148 caagacagac ctgtccggtg ccctgaatga actgcaggac gaggcagcgc ggctatcgtg 3300
149 gctggccacg acgggcgttc cttgcgcagc tgtgctcgac gttgtcactg aagcgggaag 3360
150 ggactggctg ctattgggcg aagtgccggg gcaggatctc ctgtcatctc accttgctcc 3420
151 tgccgagaaa gtatccatca tggctgatgc aatgcggcgg ctgcatacgc ttgatccggc 3480
152 tacctgccca ttcgaccacc aagcgaaaca tcgcatcgag cgagcacgta ctcggatgga 3540
153 agccggtctt gtcgatcagg atgatctgga cgaagagcat caggggctcg cgccagccga 3600
154 actgttcgcc aggctcaagg cgcgcatgcc cgacggcgag gatctcgtcg tgacccatgg 3660
155 cgatgcctgc ttgccgaata tcatggtgga aaatggccgc ttttctggat tcatcgactg 3720
156 tggccggctg ggtgtggcgg accgctatca ggacatagcg ttggctaccc gtgatattgc 3780
157 tgaagagctt ggcggcgaat gggctgaccg cttcctcgtg ctttacggta tcgccgctcc 3840
158 cgattcgcag cgcatcgcct tctatcgcct tcttgacgag ttcttctgag cgggactctg 3900
159 gggttcgaaa tgaccgacca agcgacgccc aacctgccat cacgatggcc gcaataaaat 3960
160 atctttattt tcattacatc tgtgtgttgg tttttgtgt gaagatccgc gtatggtgca 4020
161 ctctcagtac aatctgctct gatgccgcat agttaagcca gccccgacac ccgccaacac 4080
162 ccgctgacgc gccctgacgg gcttgtctgc tcccggcatc cgcttacaga caagctgtga 4140
163 ccgtctccgg gagctgcatg tgtcagaggt tttcaccgtc atcaccgaaa cgcgcgagac 4200
164 gaaagggcct cgtgatacgc ctatttttat aggttaatgt catgataata atggtttctt 4260
165 agacgtcagg tggcactttt cggggaaatg tgcgcggaac ccctatttgt ttatttttct 4320
166 aaatacattc aaatatgtat ccgctcatga caataacc ctgataaatg cttcaataat 4380
167 attgaaaaag gaagagtatg agtattcaac atttccgtgt cgcccttatt cccttttttg 4440
168 cggcattttg ccttcctgtt tttgctcacc cagaaacgct ggtgaaagta aaagatgctg 4500
169 aagatcagtt gggtgcacga gtgggttaca tcgaactgga tctcaacagc ggtaagatcc 4560
170 ttgagagttt tcgccccgaa gaacgttttc caatgatgag cacttttaaa gttctgctat 4620
171 gtggcgcggt attatcccgt attgacgccg ggcaagagca actcggtcgc cgcatacact 4680
172 attctcagaa tgacttggtt gagtactcac cagtcacaga aaagcatctt acggatggca 4740
173 tgacagtaag agaattatgc agtgctgcca taaccatgag tgataacact gcggccaact 4800
```

RAW SEQUENCE LISTING   DATE: 10/22/2002
PATENT APPLICATION: US/09/484,331   TIME: 13:28:36

Input Set : A:\2210003L.APP.txt
Output Set: N:\CRF4\10222002\I484331.raw

```
174 tacttctgac aacgatcgga ggaccgaagg agctaaccgc ttttttgcac aacatggggg 4860
175 atcatgtaac tcgccttgat cgttgggaac cggagctgaa tgaagccata ccaaacgacg 4920
176 agcgtgacac cacgatgcct gtagcaatgg caacaacgtt gcgcaaacta ttaactggcg 4980
177 aactacttac tctagcttcc cggcaacaat taatagactg gatggaggcg gataaagttg 5040
178 caggaccact tctgcgctcg gcccttccgg ctggctggtt tattgctgat aaatctggag 5100
179 ccggtgagcg tgggtctcgc ggtatcattg cagcactggg gccagatggt aagccctccc 5160
180 gtatcgtagt tatctacacg acggggagtc aggcaactat ggatgaacga aatagacaga 5220
181 tcgctgagat aggtgcctca ctgattaagc attggtaact gtcagaccaa gtttactcat 5280
182 atatacttta gattgattta aaacttcatt tttaatttaa aaggatctag gtgaagatcc 5340
183 tttttgataa tctcatgacc aaaatccctt aacgtgagtt ttcgttccac tgagcgtcag 5400
184 accccgtaga aaagatcaaa ggatcttctt gagatccttt ttttctgcgc gtaatctgct 5460
185 gcttgcaaac aaaaaaacca ccgctaccag cggtggtttg tttgccggat caagagctac 5520
186 caactctttt tccgaaggta actggcttca gcagagcgca gataccaaat actgtccttc 5580
187 tagtgtagcc gtagttaggc caccacttca agaactctgt agcaccgcct acatacctcg 5640
188 ctctgctaat cctgttacca gtggctgctg ccagtggcga taagtcgtgt cttaccgggt 5700
189 tggactcaag acgatagtta ccggataagg cgcagcggtc gggctgaacg gggggttcgt 5760
190 gcacacagcc cagcttggag cgaacgacct acaccgaact gagataccta cagcgtgagc 5820
191 tatgagaaag cgccacgctt cccgaaggga gaaaggcgga caggtatccg gtaagcggca 5880
192 gggtcggaac aggagagcgc acgagggagc ttccaggggg aaacgcctgg tatctttata 5940
193 gtcctgtcgg gtttcgccac ctctgacttg agcgtcgatt tttgtgatgc tcgtcagggg 6000
194 ggcggagcct atggaaaaac gccagcaacg cggccttttt acggttcctg gccttttgct 6060
195 ggccttttgc tcacatggct cgac                                        6084
198 <210> SEQ ID NO: 8
199 <211> LENGTH: 6085
200 <212> TYPE: DNA
201 <213> ORGANISM: Homo sapiens
203 <400> SEQUENCE: 8
204 agatcttcaa tattggccat tagccatatt attcattggt tatatagcat aaatcaatat 60
205 tggctattgg ccattgcata cgttgtatct atatcataat atgtacattt atattggctc 120
206 atgtccaata tgaccgccat gttggcattg attattgact agttattaat agtaatcaat 180
207 tacggggtca ttagttcata gcccatatat ggagttccgc gttacataac ttacggtaaa 240
208 tggcccgcct ggctgaccgc ccaacgaccc cgcccattg acgtcaataa tgacgtatgt 300
209 tcccatagta acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta 360
210 aactgcccac ttggcagtac atcaagtgta tcatatgcca agtccgcccc ctattgacgt 420
211 caatgacggt aaatggcccg cctggcatta tgcccagtac atgaccttac gggactttcc 480
212 tacttggcag tacatctacg tattagtcat cgctattacc atggtgatgc ggttttggca 540
213 gtacaccaat gggcgtggat agcggtttga ctcacgggga tttccaagtc tccaccccat 600
214 tgacgtcaat gggagtttgt tttggcacca aaatcaacgg gactttccaa aatgtcgtaa 660
215 caactgcgat cgcccgcccc gttgacgcaa atgggcggta ggcgtgtacg gtgggaggtc 720
216 tatataagca gagctcgttt agtgaaccgt cagatcacta gaagctttat tgcggtagtt 780
217 tatcacagtt aaattgctaa cgcagtcagt gcttctgaca caacagtctc gaacttaagc 840
218 tgcagtgact ctcttaatta actccaccag tctcacttca gttccttttg cctccaccag 900
219 tctcacttca gttccttttg catgaagagc tcagaatcaa aagaggaaac caacccctaa 960
220 gatgagcttt ccatgtaaat ttgtagccag cttccttctg attttcaatg tttcttccaa 1020
221 aggtgcagtc tccaaagaga ttacgaatgc cttggaaacc tggggtgcct tgggtcagga 1080
222 catcaacttg gacattccta gttttcaaat gagtgatgat attgacgata taaaatggga 1140
223 aaaaacttca gacaagaaaa agattgcaca attcagaaaa gagaaagaga ctttcaagga 1200
224 aaaagataca tataagctat ttaaaaatgg aactctgaaa attaagcatc tgaagaccga 1260
225 tgatcaggat atctacaagg tatcaatata tgatacaaaa ggaaaaaatg tgttggaaaa 1320
```

RAW SEQUENCE LISTING   DATE: 10/22/2002
PATENT APPLICATION: US/09/484,331   TIME: 13:28:36

Input Set : A:\2210003L.APP.txt
Output Set: N:\CRF4\10222002\I484331.raw

```
226 aatatttgat ttgaagattc aagagagggt ctcaaaacca aagatctcct ggacttgtat 1380
227 caacacaacc ctgacctgtg aggtaatgaa tggaactgac cccgaattaa acctgtatca 1440
228 agatgggaaa catctaaaac tttctcagag ggtcatcaca cacaagtgga ccaccagcct 1500
229 gagtgcaaaa ttcaagtgca cagcagggaa caaagtcagc aaggaatcca gtgtcgagcc 1560
230 tgtcagctgt ccagagaaag ggatcccagg tgagtagggc ccgatccttc tagagtcgag 1620
231 ctctcttaag gtagcaaggt tacaagacag gtttaaggag accaatagaa actgggcttg 1680
232 tcgagacaga gaagactctt gcgtttctga taggcaccta ttggtcttac gcggccgcga 1740
233 attccaagct tgagtattct atcgtgtcac ctaaataact tggcgtaatc atggtcatat 1800
234 ctgtttcctg tgtgaaattg ttatccgctc acaattccac acaacatacg agccggaagc 1860
235 ataaagtgta aagcctgggg tgcctaatga gtgagctaac tcacattaat tgcgttgcgc 1920
236 gatgcttcca ttttgtgagg gttaatgctt cgagaagaca tgataagata cattgatgag 1980
237 tttggacaaa ccacaacaag aatgcagtga aaaaaatgct ttatttgtga aatttgtgat 2040
238 gctattgctt tatttgtaac cattataagc tgcaataaac aagttaacaa caacaattgc 2100
239 attcatttta tgtttcaggt tcaggggggag atgtgggagg ttttttaaag caagtaaaac 2160
240 ctctacaaat gtggtaaaat ccgataagga tcgattccgg agcctgaatg gcgaatggac 2220
241 gcgccctgta gcggcgcatt aagcgcggcg ggtgtggtgg ttacgcgcac gtgaccgcta 2280
242 cacttgccag cgccctagcg cccgctcctt tcgctttctt cccttccttt ctcgccacgt 2340
243 tcgccggctt tccccgtcaa gctctaaatc ggggctccc tttagggttc cgatttagtg 2400
244 ctttacggca cctcgacccc aaaaaacttg attagggtga tggttcacgt agtgggccat 2460
245 cgccctgata gacggttttt cgccctttga cgttggagtc cacgttcttt aatagtggac 2520
246 tcttgttcca aactggaaca acactcaacc ctatctcggt ctattctttt gatttataag 2580
247 ggattttgcc gatttcggcc tattggttaa aaaatgagct gatttaacaa aaatttaacg 2640
248 cgaattttaa caaaatatta acgcttacaa tttcgcctgt gtaccttctg aggcggaaag 2700
249 aaccagctgt ggaatgtgtg tcagttaggg tgtggaaagt ccccaggctc ccagcaggc 2760
250 agaagtatgc aaagcatgca tctcaattag tcagcaacca ggtgtggaaa gtccccaggc 2820
251 tccccagcag gcagaagtat gcaaagcatg catctcaatt agtcagcaac catagtcccg 2880
252 cccctaactc cgcccatccc gcccctaact ccgcccagtt ccgcccattc tccgccccat 2940
253 ggctgactaa tttttttttat ttatgcagag gccgaggccg cctcggcctc tgagctattc 3000
254 cagaagtagt gaggaggctt ttttggaggc ctaggctttt gcaaaaagct tgattcttct 3060
255 gacacaacag tctcgaactt aaggctagag ccaccatgat tgaacaagat ggattgcacg 3120
256 caggttctcc ggccgcttgg gtggagaggc tattcggcta tgactgggca caacagacaa 3180
257 tcggctgctc tgatgccgcc gtgttccggc tgtcagcgca ggggcgcccg gttctttttg 3240
258 tcaagaccga cctgtccggt gccctgaatg aactgcagga cgaggcagcg cggctatcgt 3300
259 ggctggccac gacgggcgtt ccttgcgcag ctgtgctcga cgttgtcact gaagcgggaa 3360
260 gggactggct gctattgggc gaagtgccgg ggcaggatct cctgtcatct caccttgctc 3420
261 ctgccgagaa agtatccatc atggctgatg caatgcggcg gctgcatacg cttgatccgg 3480
262 ctacctgccc attcgaccac caagcgaaac atcgcatcga gcgagcacgt actcggatgg 3540
263 aagccggtct tgtcgatcag gatgatctgg acgaagagca tcaggggctc gcgccagccg 3600
264 aactgttcgc caggctcaag gcgcgcatgc ccgacggcga ggatctcgtc gtgacccatg 3660
265 gcgatgcctg cttgccgaat atcatggtgg aaaatggccg cttttctgga ttcatcgact 3720
266 gtggccggct gggtgtggcg gaccgctatc aggacatagc gttggctacc cgtgatattg 3780
267 ctgaagagct tggcggcgaa tgggctgacc gcttcctcgt gctttacggt atcgccgctc 3840
268 ccgattcgca gcgcatcgcc ttctatcgcc ttcttgacga gttcttctga gcgggactct 3900
269 ggggttcgaa atgaccgacc aagcgacgcc caacctgcca tcacgatggc cgcaataaaa 3960
270 tatctttatt ttcattacat ctgtgtgttg gttttttgtg tgaagatccg cgtatggtgc 4020
271 actctcagta caatctgctc tgatgccgca tagttaagcc agccccgaca cccgccaaca 4080
272 cccgctgacg cgccctgacg ggcttgtctg ctcccggcat ccgcttacag acaagctgtg 4140
273 accgtctccg ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa acgcgcgaga 4200
274 cgaaagggcc tcgtgatacg cctattttta taggttaatg tcatgataat aatggtttct 4260
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 10/22/2002
PATENT APPLICATION: US/09/484,331   TIME: 13:28:37

Input Set : A:\2210003L.APP.txt
Output Set: N:\CRF4\10222002\I484331.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:10; N Pos. 29,30,31,32
Seq#:21; N Pos. 890,1042
Seq#:22; N Pos. 8347,8499
Seq#:23; N Pos. 8347,8499
Seq#:24; N Pos. 8481,8633
Seq#:25; N Pos. 8670,8822
Seq#:28; N Pos. 8347,8499